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APPLICATION FOR LETTERS PATENT

FOR

SYSTEM FOR SECURING FABRIC TO A QUILTING BAR

INVENTOR:

Jim Bagley

SYSTEM FOR SECURING FABRIC TO A QUILTING BAR

BACKGROUND OF THE INVENTION

[0001] **Field Of the Invention:** This invention relates generally to attaching fabric to quilting frames. More specifically, the invention relates to a system for quickly and securely attaching single or multiple layers of fabric, batting or other materials to a quilting frame or other needlework frame or hoop, wherein the system can be used to retro-fit exiting quilting frames, or be provided as the primary attaching system of a new quilting frame or other needlework frame or hoop.

[0002] **Description of Related Art:** The state of the art in attaching fabric to quilting frames, other needlework frames and hoops is a relatively difficult system of rolling or wrapping fabric, batting, or some type of material (hereinafter to be collectively referred to as "material") onto two rolling bars or hoops (hereinafter referred to collectively as "bars"). The rolling bars are turned in opposite directions to create tension in the material so that it can be worked

on. The bars are generally going to be turned at least once so that the material is overlapping itself so that it won't come off of the bars. Tension is created on the material by providing some means of preventing the two bars from rotating once they have been rotated sufficiently to remove any slack in the material.

[0003] An example of this prior art material mounting system can be seen, for example, in U.S. Patent No. 6,151,816, wherein a quilting machine is illustrated having a rail assembly. As shown in figure 1, the rail assembly includes at least two bars 8 whereon the material is rolled, and the bars are then prevented from rolling and releasing tension on the material by using ratchets 6 at the ends of the rails.

[0004] There are some difficulties inherent in the system used for holding the material on the rolling bars as will become apparent from the following description. The material is first mounted on a first rolling bar by overlapping the material upon itself by rotating the first rolling bar.

[0005] The next step is to mount the material to the second rolling bar. Consider the problem that arises when the material being mounted on the quilting frame is relatively wide. It is difficult to keep the

material from falling off a rail while simultaneously trying to rotate the rail to try and get the material to overlap itself. Even when the material is not relatively wide, it can still be a difficult task to get the material to overlap itself on the bar in an even manner. In other words, the material may slip on one end or even in the middle as the rail is rotated. The result is that the material will be crooked or have locations where it is stretched tighter than others. The resulting product may have undesirable irregularities.

[0006] Accordingly, what is needed is a system and method for more easily attaching material, from a single layer to multiple layers, to a roll bar. It would also be an improvement over the state of the art to provide a system that enables the tension on the material to be more evenly controlled to thereby obtain a better finished product.

BRIEF SUMMARY OF THE INVENTION

[0007] It is an object of the present invention to provide a system and method for attaching material to a quilting frame.

[0008] It is another object of the present invention to provide a system and method for retro-fitting an existing quilting frame that uses a prior art method of attaching material to the quilting frame.

[0009] It is another object to provide a system and method for attaching material to a quilting frame that enables even tension to be applied to the material along a length where it is attached to the quilting frame.

[0010] In a preferred embodiment, the present invention is a rail member having a slot disposed therein, and a slot member being provided for being disposed in the slot, wherein material is disposed between the slot and the slot member such that sufficient tension is maintained between the slot member, the material, and the slot such that the material will not easily slide out of the slot.

[0011] In a first aspect of the invention, a slot is provided in a rail that enables a slot member and material to be disposed therein.

[0012] In a second aspect of the invention, a cross-section of the slot and the slot member are formed to thereby facilitate capture of material in the slot.

[0013] In a third aspect of the invention, the slot member is rigid or flexible.

[0014] These and other objects, features, advantages and alternative aspects of the present invention will become apparent to those skilled in the art from a consideration of the following detailed description taken in combination with the accompanying drawings.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

[0015] Figure 1 is a view of a rail assembly from the prior art.

[0016] Figure 2 is a cross-sectional view of an embodiment that is made in accordance with the principles of the present invention.

[0017] Figure 3 is a cross-sectional close-up of a portion of figure 1 defined by circle A.

[0018] Figure 4 is a perspective view of the embodiment shown in figure 1.

[0019] Figure 5 is a cross-sectional perspective view of a different embodiment having a slot that is an integral component of a rail.

[0020] Figure 6 is a cross-sectional perspective view of another embodiment where a portion of the slot member is disposed outside of the slot.

[0021] Figure 7 is cross-sectional perspective view of another embodiment wherein the slot member is hollow for added flexibility and strength.

DETAILED DESCRIPTION OF THE INVENTION

[0022] Reference will now be made to the drawings in which the various elements of the present invention will be given numerical designations and in which the invention will be discussed so as to enable one skilled in the art to make and use the invention. It is to be understood that the following description is only exemplary of the principles of the present invention, and should not be viewed as narrowing the claims which follow.

[0023] The presently preferred embodiment of the invention is comprised of two components as shown in figure 2. Figure 2 shows a cross sectional view of the present invention. The elements shown in figure 2 include a slot 10 having a channel 18 that is formed along a length thereof (shown here in profile only), and a slot member 12 disposed in the channel of the slot 10. The slot 10 is shown attached to a rail 14. As an example only, three layers of material 20 that

are being quilted are shown as being disposed between the slot 10 and the slot member 12.

[0024] In this embodiment, an underside 16 of the slot 10 is shown as having an arcuate surface to make it more versatile. Thus, the arcuate surface 16 can be attached to a flat surface of the rail 14 as shown, but can also be attached to an arcuate surface of a different rail.

[0025] An important aspect of the present invention is to be able to securely attach the slot 10 to any rail. This is because the present invention can be used to retro-fit an existing quilting frame, or it can be designed as the primary construction of a new rail. Furthermore, it is possible to replace an existing rail of a quilting frame with a new rail that incorporates the present invention in its design as an integral element.

[0026] Figure 3 is provided as a close-up view of the present invention as shown in figure 2 and designated by the circle A. Note that figure 3 more readily shows an adhesive material 22 disposed between the rail 14 and the slot 10.

[0027] Any appropriate adhesive material 22 can be used, so long as the slot 10 is securely attached to

the rail 14. The adhesive material 22 can already be attached to the slot 10 when the slot is being added to an existing quilting frame. Thus, a non-stick strip of protective paper will be removed from the adhesive material 22 that exposes an adhesive surface thereof so that it can be attached to the rail 14.

[0028] Alternatively, the slot 10 may not have any pre-applied adhesive material 22. The adhesive material 22 may be a separate adhesive that is first applied to the rail 14, and then the slot is carefully disposed on top of the adhesive material 22 to complete the application process. Thus, the method of attachment is not important so long as the slot is securely coupled to the rail 14.

[0029] In another embodiment, the adhesive can be replaced by screws or nails. All that is important is that the slot 10 be securely coupled to the rail 14. The advantage of using screws comes from the temporary nature of the attachment. Screws can be removed and the slot 10 taken off the rail 14 if it is desirable to use the slot 10 on another system that requires quick, safe but temporary attachment of material.

[0030] Figure 4 is provided as a perspective view of the slot 10, the slot member 12, the rail 14, and the

material 20 disposed between the slot and the slot member.

[0031] The slot 10 and the slot member 12 may be comprised of relatively rigid material, or they may have some degree of flexibility. It is generally going to be the case that the slot 10 is made from a relatively rigid material. However, it may facilitate attachment of the material 20 within the slot 10 to make the slot member 12 relatively flexible. In this manner, a user would begin at a first end of the slot 10 and push the slot member 12 against the material 20 and into the slot. One hand of the user is used to pull on the material 20 while the other hand is used to push and slide the slot member 12 into the slot 10 along the length of the slot. The slot member 12 is thus simultaneously inside and outside the slot 10. Experimentation has shown that a relatively flexible slot member 12 facilitates the present invention.

[0032] It is another aspect of the invention that the slot member 12 may not only be relatively flexible, but be comprised of a wide range of materials including plastic, rubber, or foam. If foam is used, it must still be sufficiently rigid to enable the slot member 12 to create sufficient tension within the slot 10 to

securely hold the material 20. Thus, it is more likely that a rubber or rubber-like material is used for the slot member 12. This provides the advantages of not only being relatively flexible, but also provides some ability to grip the material because of the tacky nature of some rubber and rubber-like materials.

[0033] Another aspect of the present invention is the cross-section formed by the slot 10 and the slot member 12. In figures 2, 3 and 4, the slot 10 is shown as having a circular cross-section. Likewise, the slot member 12 has a circular cross-section. However, the present invention includes other cross-sectional shapes. These shapes can be triangular, square, rectangular, or any other appropriate cross-sectional design.

[0034] Figure 5 is provided to illustrate another aspect of the present invention. Specifically, a rail 30 is shown having an integral slot channel 32 disposed therein, and a slot member 34 disposed within the slot channel. Thus, the slot channel 32 is not a retro-fit of an existing rail, but is now manufactured as an integral component. In this particular embodiment, notice also that the cross-section of the slot channel 32 and the slot member 34 is generally triangular.

Because of the narrow opening 36 in the slot channel 32, the slot member 34 must be manufactured of a foam or foam-like material, or the slot member must slide into the slot from one end. It is more likely that the slot member 34 is made from a foam-like material.

[0035] Figure 6 is provided as another embodiment of the present invention. This embodiment illustrates yet another aspect of the present invention. A rail 40 includes an integral slot channel 42, and shows a slot member 44. The slot member 44 is different from previous designs that were disposed entirely within a slot. In this embodiment, the slot member 44 includes a component 46 that is disposed outside of the slot channel 42. This design has the advantage of providing additional tension on the material that is disposed between the slot channel 42 and the slot member 44 by providing additional surface area on the slot member that will make contact with the material.

[0036] Notice also that the slot member 44 now includes a gap 48 in the portion of the slot member that is disposed within the slot channel 42. The gap 48 enables the slot member 44 to be more easily compressed. This compression enables the slot member 44 to be more easily inserted into the slot channel 42,

especially if the slot member 44 is not foam or foam-like material, but a more rigid but still flexible rubber or rubber-like material.

[0037] Another aspect of the present invention relates to the nature of the slot member. As shown in figure 7, the slot member 50 can also be a hollow structure such as a tube shown here, thereby enabling the slot member to be very flexible. However, the hollow cross-section of the slot member does not need to be circular as shown here, but any hollow shape.

[0038] In a related aspect, several different slot members of various diameters can be used with a single slot. The various diameters enable a user to attach various numbers of layers and/or thicknesses of material to a slot. The user simply chooses the appropriate diameter slot member that can fit snugly into the slot with the selected material.

[0039] Another aspect of the present invention is the ability to quickly, securely and safely fasten material for other purposes. For example, consider a quilt hanging system. Typically, quilts are hung on walls using various attachment systems, some of which can damage the material. Damaging a quilt or other fabric is highly undesirable, especially when the quilt

or material is an antique, and needs to be handled gently in order to preserve the quilt and its value. A related application is in any type of fabric suspension system, including tents and other similar systems.

[0040] It is to be understood that the above-described arrangements are only illustrative of the application of the principles of the present invention. Numerous modifications and alternative arrangements may be devised by those skilled in the art without departing from the spirit and scope of the present invention. The appended claims are intended to cover such modifications and arrangements.